

CLAIMS

What is claimed is:

1. A method of delivering a nucleic acid of interest to a chondrocyte, said method comprising:

providing a recombinant adenovirus having a tropism for chondrocytes, said recombinant adenovirus comprising:

a nucleic acid of interest; and

a nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus, wherein said fiber protein of the B-type adenovirus has a tropism for chondrocytes; and

infecting a chondrocyte with said recombinant adenovirus, such that said nucleic acid is delivered to said chondrocyte.

2. The method according to claim 1, wherein said B-type adenovirus is selected from the group consisting of adenovirus type 16, adenovirus type 35, and adenovirus type 51.

3. The method according to claim 1, wherein said recombinant adenovirus comprises an adenovirus type 5 nucleic acid sequence.

4. The method according to claim 3, wherein said recombinant adenovirus comprises an adenovirus type 5 genome.

5. The method according to claim 1, wherein said recombinant adenovirus comprises at least one deletion in the E1 or the E3 region, where the nucleic acid of interest is inserted or can be inserted.

6. The method according to claim 1, wherein said nucleic acid of interest encodes at least one amino acid sequence that inhibits cartilage disease progression and/or at least one amino acid sequence that counteracts the loss of cartilage.

7. The method according to claim 1, wherein the nucleic acid of interest encodes at least one member of the family of bone morphogenesis proteins.

8. A chondrocyte provided with an additional nucleic acid of interest encoding at least one amino acid sequence that inhibits cartilage disease progression and/or at least one amino acid sequence that counteracts the loss of cartilage, said additional nucleic acid of interest being provided by the method according to claim 6.

9. A chondrocyte provided with an additional nucleic acid of interest encoding at least one member of the family of bone morphogenesis proteins, said additional nucleic acid of interest being provided by the method according to claim 7.

10. A method of inhibiting cartilage disease progression in a subject, said method comprising:

preparing a recombinant adenovirus having a tropism for chondrocytes, said recombinant adenovirus comprising:

a nucleic acid of interest encoding at least one amino acid sequence that inhibits cartilage disease progression and/or at least one amino acid sequence that counteracts cartilage loss; and

a nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus, wherein said fiber protein of the B-type adenovirus has a tropism for chondrocytes; and

infecting a chondrocyte with said recombinant adenovirus, such that said nucleic acid of interest is expressed in said chondrocyte, thereby inhibiting cartilage disease progression.

11. The method according to claim 10, wherein said B-type adenovirus is selected from the group consisting of adenovirus type 16, adenovirus type 35, and adenovirus type 51.

12. The method according to claim 10, wherein said recombinant adenovirus comprises an adenovirus type 5 nucleic acid sequence.

13. The method according to claim 12, wherein said recombinant adenovirus comprises an adenovirus type 5 genome.

14. The method according to claim 11, wherein said recombinant adenovirus comprises at least one deletion in the E1 or the E3 region, where the nucleic acid of interest is inserted or can be inserted.

15. A method of repairing cartilage, said method comprising the steps of:
preparing a recombinant adenovirus having a tropism for chondrocytes, said recombinant adenovirus comprising:
a nucleic acid of interest encoding at least one member of the family of bone morphogenesis proteins; and
a nucleic acid encoding at least a part of a fiber protein of a B-type adenovirus, wherein said fiber protein of the B-type adenovirus has a tropism for chondrocytes; and
infecting a chondrocyte with said recombinant adenovirus, such that said nucleic acid of interest is expressed in said chondrocyte, thereby effecting cartilage repair.

16. The method according to claim 15, wherein said B-type adenovirus is selected from the group consisting of adenovirus type 16, adenovirus type 35, and adenovirus type 51.

17. The method according to claim 15, wherein said recombinant adenovirus comprises an adenovirus type 5 nucleic acid sequence.

18. The method according to claim 17, wherein said recombinant adenovirus comprises an adenovirus type 5 genome.

19. The method according to claim 15, wherein said recombinant adenovirus comprises at least one deletion in the E1 or the E3 region, where the nucleic acid of interest is inserted or can be inserted.